Alphanumeric displays in hazardous areas

MTL643/644 DISPLAYS

IS text displays

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CE

- **Large LCD alphanumeric display**
- **Point to point or multidrop communication with PC, PLC or simple host**
- **RS232 or RS422 in safe area**
- **Easy to configure simple ASCII communication**
- **Tough impact-resistant field unit with separate terminal compartment**
- **DIN-standard panel-mounted version**

The MTL643/4 IS text displays are located in the hazardous area where they display alphanumeric data from a safe-area host controller. This is transmitted by a serial data link passing through an MTL5051 isolating interface. This serves the dual purpose of isolating the IS indicator and converting RS232 or RS422 serial data to the MTL signal level and vice versa. Bi-directional communication permits operators to acknowledge messages and to request process action when necessary. If required, an audible or visual alarm can be connected to attract the operators attention.

A clear and unambiguous alphanumeric display is provided by liquid crystal module with two lines of up to sixteen 9mm high characters. All 32 characters may be alphanumeric so process values, engineering units, tag idents and operator messages are easily displayed.

Operator control is provided by three external switches (not supplied) which are connected to terminals on the indicator and which can be used to acknowledge alarm messages and change process information such as the resetting of the tare in a weighing system.

The controller maintains master control, requiring all remote display units to respond to its commands. In multi-indicator applications, it transmits a block of information which includes the indicator type, address and data. Data is transmitted in the form of ASCII characters interpreted by the appropriate indicator which either updates the display or responds with a reply such as indicator status or switch status. In single indicator applications, the protocol may be simplified to direct data transmission for communication with less sophisticated host units including PLCs, dedicated control instrumentation and weighing systems.

A single alarm output (an opto-isolated open collector transistor output) is provided for connection to a suitable visual or audible alarm unit to attract the operator's attention.

Error checking routines are carried out by the indicator, the result being stored in the status data register where it can be accessed by the host computer.

MTL643 field mounting unit is housed in a tough impact-resistant GRP case designed to withstand the rigours of hostile weather conditions and harsh industrial environments. Ingress protection rating is IP66. It can be mounted directly onto a flat surface or with an optional PIP68 kit, onto vertical or horizontal pipes or posts.

MTL644 panel mounting unit is designed for DIN standard 72 x 144mm casing. The cut-out size will depend on the rating required. The front panel fascia is protected to IP65 while, with standard 'snap-on' mounting clips, the panel/unit seal is rated IP40. This can be uprated to IP65 with the optional IPK68 sealing kit. For mounting details see MTL680.

SPECIFICATION

Location
Zone 0, IIC, T4, hazardous area
Div. 1, Group A, hazardous area

Power supply
9 to 28V at 8mA, through interface or from IS supply

Display
2x16 character alpha-numeric lcd display; 9 mm characters, 5x7 dot matrix

Display characters
ASCII character set plus 8 computer-defined soft characters

Cursor position
Host computer controlled, visible or invisible on display

Controls
Terminals provided for connecting three external switches for operators to acknowledge messages or initiate process changes; maximum cable length 5m.

Alarm
One opto-isolated open collector transistor to operate visual or audible alarm
External power supply required
Transistor spec: open-circuit voltage <28V
short-circuit current ≤50mA(<2V drop at 50mA)

IS interface
MTL5051 Serial data communications isolator converts RS232/RS422 to MTL serial data format
One interface unit can power up and pass data to one or two indicators
One interface unit can pass data to up to four indicators provided power is supplied by a MTL5025 IS remote source

Data link
Single data highway from IS interface unit, half duplex

Host controller format
RS232 or RS422
Multi-indicator configurations communicate according to MTL serial data protocol (see publication INM643)
Single indicator configurations can communicate by a direct ASCII data pattern (indicator address set at 0)

System protocol
Transmission based on blocks of information using printable ASCII characters; full MTL system protocol software provided in publication INM643

Transmission speeds and format (DIL switch selectable)
1.2, 2.4, 4.8, or 9.6kbaud
1 or 2 stop bits
odd, even, or no parity bit
7 or 8 data bits

Note: *Combinations of 8 bits, 2 stop bits, parity bit and 7 bits, 1 stop bit, no parity are not permitted*

Terminals
For conductors up to 2.5mm²

Safety descriptions
<28V, <1.2W, <200mA

Weight
MTL643 approximately 1.3 kg
MTL644 approximately 275 g

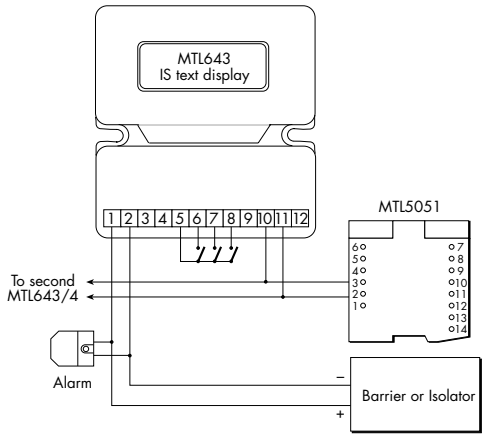
Ambient temperature
0 to +50°C working
-20 to +70°C storage

Humidity
0 to 95% non-condensing

Dimensions and mounting details
MTL643 see MTL680 Series field-mounting indicators page for details
MTL644 see MTL680 Series panel-mounting indicators page for details

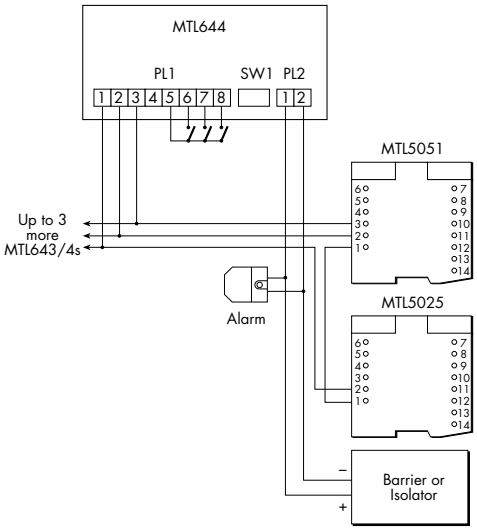
SYSTEM CONFIGURATIONS

MTL643 or MTL644* Signal powered



** With MTL644 connections are from 5051 to PL1 terminals 2 and 3 and the optional alarm is connected to PL2 terminals 1 and 2*

MTL643† or MTL644 Separately powered



† With MTL643 connections are from 5051/5025 to terminals 10, 11 and 12 and the optional alarm is connected to terminals 1 and 2

APPROVALS

Country (Authority)	Standard	Certificate/ file no.	Approved for
Australia (SA)	AS2380.7	*	Ex ia IIC T4
Canada (CSA)	C22.2 No.157	*	Class I, Div.1, Gps. A–D T4
Czech Republic (FTZU)	EN 50014 & EN 50020	99Ex0226	II 2 G EEx ia IIC T4
Switzerland (SEV)	EN 50014 & EN 50020	99,7 70466, 03	EEx ia IIC T4
UK (BASEEFA to CENELEC standards)	EN 50014 & EN 50020 EN 50039	Ex90C 2002 Ex99E2199	EEx ia IIC T4 EEx ia IIC T4 (systems)
USA (FM)	3610 entity 3611 non-incendive	*	Class I, II, III Div I, Gps A-G Class I, Div 2, Gps A-D

* Approvals pending

TO ORDER, specify:

Model	MTL643 field-mounting IS text display MTL644 panel-mounting IS text display
Interface	MTL5051 (RS232 or RS422)
IS power supply	MTL5025
Mounting kits	PIP68 (pipe/post mounting for MTL643)
Sealing kit	IPK68 (for MTL644)
Literature	INM643 user's manual